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58.(New) A method of manufacturing a semiconductor device according to any one of claims ~~53~~ and ~~56~~, wherein said step of leveling said surface of said semiconductor film is conducted between 900 and 1200 °C.

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59.(New) A method of manufacturing a semiconductor device according to any one of claims ~~53~~ and ~~56~~, further comprising a step of treating a surface of said semiconductor film with a buffered hydrofluoric acid before said irradiation of said laser light.

26
60.(New) A method of manufacturing a semiconductor device according to any one of claims ~~53~~ and ~~56~~, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.—

REMARKS

At the outset, the Examiner is thanked for the review and consideration of the present application.

The Examiner's Office Action dated October 24, 2001, has been received and its contents reviewed. By this Amendment claims 54 has been amended, and new claims 55-60 have been added. Accordingly, claims 5 and 36-54 and new claims 55-60 are now pending in the present application, of which claims 5, 36-48, 55 and 56 are independent.

Turning now to the detailed Office Action, claims 49-54 have been objected to as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. This objection is respectfully traversed.

Applicants respectfully submit that claims 49-54 are acceptable multiple dependent claims, according to MPEP 608.01(n) I. A. (page 600-72, Aug. 2001). Accordingly, the objection is respectfully requested to be reconsidered and withdrawn.

Claims 5 and 36-54 are provisionally rejected under the judicially-created doctrine of obviousness-type double patenting as unpatentable over claim 1-18 of co-pending Application Serial No. 09/894,125 in view of Takemura (U.S. Patent No. 5,616,506). Applicants respectfully

request that this provisional rejection be held in abeyance until all other pending issues are resolved.

Claims 5, and 36-48 are rejected under 35 U.S.C. § 103(a) as unpatentable over Takemura in view of Zhang et al. (U.S. Patent No. 5,569,610 - hereafter '610); claims 37-40, 43, 44, 46-48 are rejected under 35 U.S.C. § 103(a) as unpatentable over Takemura in view of Zhang et al. ('610) and Zhang (U.S. Patent No. 5,888,857 - hereafter '857); and, claims 41-45 are rejected under 35 U.S.C. § 103(a) as unpatentable over Takemura in view of Zhang et al. ('610) and Zhang ('857) in view of Ohtani et al. (U.S. Patent No. 6,285,042 - hereafter Ohtani). These rejections are respectfully traversed at least for the reasons provided below.

With respect to the rejection of claims 5, and 36-48 over Takemura and Zhang ('610), Applicants respectfully submit that independent claims 5 and 36-46 recite irradiating the semiconductor film with laser light in air for crystallizing the semiconductor film after providing the catalytic element. Further, independent claims 47 and 48 recite irradiating the semiconductor film with laser light in an atmosphere containing oxygen.

On the other hand, neither Takemura ('506) nor Zhang ('610) discloses the above features.

Further, the Examiner contends Takemura ('506) teaches that the second heat treatment takes place in a reducing atmosphere that contains hydrogen, as shown col. 7. However, Applicants respectfully submit that HCl is not a reducing atmosphere but an oxidizing atmosphere. Therefore, the contention that Takemura ('506) teaches the second heat treatment takes place in a reducing atmosphere that contains hydrogen is not correct.

It is well-established that, in order to show obviousness, all limitations in the claim must be taught or suggested by the prior art. In Re Boyka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); MPEP § 2143.03. It is error to ignore specific limitations distinguishing over the references. In Re Boe, 184 U.S.P.Q. 38, 505 F.2d 1297 (C.C.P.A. 1974); In Re Saether, 181 U.S.P.Q. 36, 492 F.2d 849 (C.C.P.A. 1974); In Re Glass, 176 U.S.P.Q. 489, 472 F.2d 1388 (C.C.P.A. 1973).

Citing references which merely indicate that isolated elements and/or features recited in the claims are known is not a sufficient basis for concluding that the combination of claimed elements would have been obvious. Ex parte Hiyamizu 10 USPQ2d 1393 (BPAI 1988).

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. In re Geiger 815 F2d 686 (Fed. Cir. 1987), 2 USPQ2d 1276; In re Fine 837 F2d 1071, 5 PQ2d 1596 (Fed. Cir. 1988).

Takemura and Zhang ('610) fail to teach, disclose, or suggest irradiating the semiconductor film with laser light in air for crystallizing the semiconductor film after providing the catalytic element, as well as irradiating the semiconductor film with laser light in an atmosphere containing oxygen. Further, both of these cited prior art references fail to provide motivation to combine their respective teaching to make Applicants' invention recited in claims 5 and 36-48. Still further, Takemura fails to teach, disclose, or suggest the second heat treatment takes place in a reducing atmosphere that contains hydrogen. Therefore, their combination in the § 103(a) rejection would not be proper. Accordingly, Applicants respectfully request reconsideration and withdrawal of the § 103(a) rejection of claims 5 and 36-48 over Takemura and Zhang ('610).

With respect to independent claims 37-40, 43, 44, and 46-48, which are rejected under 35 U.S.C. §103(a) as being unpatentable over Takemura ('506) and Zhang ('610) in view of Zhang ('857) as described in page 5 of the Office Action, Applicants respectfully submit that Zhang ('857) also fails to teach irradiating the semiconductor film with laser light in air or in atmosphere containing oxygen, and that the claimed inventions cannot be obtained even though these three references are combined.

Further, although Zhang ('857) may teach that the leveling process can be done in an environment void of oxygen to prevent the silicon from reacting with oxygen, Zhang ('857) does not teach an oxygen concentration of 10 ppm or less as recited in claims 38-40 and 44-48.

With respect to independent claims 41-45, which are rejected under 35 U.S.C. §103(a) as being unpatentable over Takemura ('506), Zhang ('610) and Zhang ('857) in view of Ohtani as described in page 6 of the Office Action, Applicants respectfully submit that Ohtani also fails to

teach irradiating the semiconductor film with laser light in air or in an atmosphere containing oxygen, and that the claimed inventions could not be obtained even if these four references were combined.

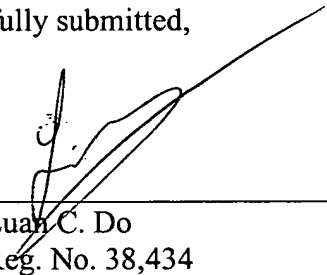
New claims 55-60 have been added to further complete the scope of the invention to which Applicants are entitled. New claims 55 and 56 recite removing a natural oxidation film from a surface of the semiconductor film, which is supported at least in page 8, lines 1-3 of the specification. Applicants respectfully submit that the new claims are distinguishable over the cited references.

CONCLUSION

Having responded to all rejections set forth in the outstanding Final Office Action, it is submitted that claims 5, 36-54 and new claims 55-60 are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,

By



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VERSION OF AMENDED CLAIM WITH
MARKINGS TO SHOW CHANGES MADE

54. (Amended) A method of manufacturing a semiconductor device according to any one of claims 5, and 36-48, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.